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ABSTRACT

This three-part report provides the findings of a survey of 999 two-year colleges to determine their computer-related expenditures and seeks to facilitate inter-institutional comparisons of these data. The introduction outlines the purpose of the study, key findings, methodology, and limitations. The second section instructs personnel at individual colleges in making use of the report, by providing guidelines for obtaining institutional base data, calculating institutional results, and making comparisons between individual campus and study results. The final section first describes the study's design, which calls for the calculation of four sets of computer expenditures: the ongoing costs of a college's computer functions; the sum of these costs and of computer lease expenditures; this sum plus computer development and computer capital purchase expenditures; and the total of these expenditures plus major "one-shot" development and purchase costs amortized over a seven-year period. Findings are then presented with respect to: (1) computer expenditures as a percent of total operating expenditures; (2) computer-related expenditures per credit headcount student; (3) college operating expenditures per credit headcount student; and (4) computer expenditures as a percent of college total operating expenditures and allocation between academic and administrative support for all 308 responding institutions and for these colleges divided into four enrollment size categories. Appendices provide additional comparative data. (AYC)

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COMPARATIVE COMPUTER EXPENDITURES

for community and junior colleges

A prototype study of 308 institutions

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This study was developed under the guidance of the NACUBO Two-Year Colleges Committee, with support from CAUSE.

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This report is one of the products that has resulted from recent concerns by the Two-Year Colleges Committee of NACUBO for the development and provision of comparative financial and operating statistics for the nation's two-year institutions of higher education. The basic effort of the Committee was directed, with support of ACE, AACJC and NCES, to the publication in May 1979 and May 1980 of monographs entitled "Comparative Financial Statistics for Community and Junior Colleges--1977-78" and for "1978-79."

Active support was provided by the Two-Year Colleges Committee under its chairman, William L. Prather, Business Manager of Amarillo College, Texas, and M. J. Williams, Director of Special Projects, NACUBO. Support in defining needs and assisting in the conduct of the questionnaire survey was provided by Charles R. Thomas, Executive Director, CAUSE.

From initial conceptualization to the drafting of the finished study, the primary input for study design, questionnaire design, conduct of the questionnaire study, analysis of results, and preparation of the final report was provided by Maurice P. Arth, a member since 1977/78 of NACUBO's Two-Year Colleges Committee and Vice Chancellor for Financial and Management Services-Treasurer of Cuyahoga Community College, Cleveland, Ohio. Mr. Arth also kindly volunteered the support of his institution's Office of Systems and Computer Services in the receipt, audit, follow-up as needed, and computer-based processing and analysis of the questionnaire responses.

I. INTRODUCTION

A. Purpose

This report is the result of an intensive year-long effort to develop, for the first time, data on levels of computer-related expenditures for two-year colleges across the nation. Many studies have been conducted of various aspects of college computer operations. In most instances, however, the results of such surveys have not been susceptible to statistical aggregation and analysis. In consequence, it has usually not been possible to meaningfully relate their findings to the experience of individual institutions in any really satisfactory way. The result has often been a plethora of data--useful in one or another degree for the purposes for which they were gathered--but lacking inter-institutional comparability. It has seldom been possible to answer the fundamental question of how an institution stands vis-a-vis its peers in regard to allocation of resources to the computer function.

The present study has plowed new ground in seeking simple, comparable data on computer costs. Severe discipline in regard to the definition of the data selected for collection, aggregation, and analysis has yielded such simple but meaningful information on computer-related expenditures in relation to total college expenditures and to credit student headcount. This is a case where less is more. The extremely constrained request for data has yielded more useful and meaningful results than has any such study conducted previously.

The central purpose of this report is to provide answers to the eternal question in regard to computer expenditures: how do allocations of resources to the computer function for one's own institution compare with those for other comparable two-year institutions? The payoff from the study comes from comparing expenditure levels for a given institution with the array of such data for institutions of similar size. Such comparisons do not tell an institution whether it is spending too much or too little or whether it is spending wisely or not. But they do tell an institution something it has not previously been able to ascertain. This is whether the institution's computer-related expenditures--as a percentage of total operating expenditures and in dollars per credit headcount student--are high, medium, or low relative to expenditures of other similarly sized institutions.

This study also provides these data not alone for basic computer operating expenditures but also for the sum of these "normal" costs plus annual equipment lease costs and those major developmental and capital costs periodically incurred by most institutions. Finally, it displays the breakdown of computer operating expenditures between administratively-related and academically-related support as well as the proportions that each of these latter two categories are of the total.

The results should help boards and administrations evaluate the extent to which their own experience represents where they believe they are and where they want to be in regard to resources allocated to computer support to their administrative and academic programs and processes.

B. Key Findings

Summary findings include the following:

- The median institutions of the 308 two-year colleges included in the survey allocated:
  - Some 1.9% of college total operating expenditures or $27 per credit headcount student to "normal" computer operating expenditures and 2.7% of college total operating expenditures or $38 per credit headcount student to total computer-related expenditures.
  - About one-third of "normal" computer operating expenditures or $7 per credit headcount student to academic support and two-thirds of "normal" computer operating expenditures or $15 per credit headcount student to administrative support.
- The modal institutions of the 77 two-year colleges in the upper quarter of the 308 institutions allocated:
  - 4.2% of college total operating expenditures or $62 per credit headcount student to "normal" computer operating expenditures and 6.4% of college total operating expenditures or $103 per credit headcount student to total computer-related expenditures.
- The proportion of college total operating expenditures allocated for computer-related expenditures generally increased with size of institution while average expenditures per credit headcount student did not vary greatly among the 1,001-5,000, 5,001-15,000, and over 15,000 peer group categories. This is the result of college total operating expenditures per credit headcount student that, on the average, declined with increases in size of institution, i.e., at the median from $2,443 for the 0-1,000 student category to $1,708, to $1,147, and $993 for the three larger peer group categories.
- For institutions with credit student headcounts of up to 1,000, computer-related expenditures were much lower both in percentage of college total operating expenditures and in dollars per credit headcount student than for larger institutions.
- For the upper quarter of institutions with credit student headcounts above 1,000:
  - Modal figures for "normal" computer-related expenditures ranged from 3.8% to 4.9% of college total operating expenditures and from $44 to $60 per credit headcount student.

- Modal figures for total computer-related expenditures ranged from 5.9% to 8.6% of college total operating expenditures and from $79 to $97 per credit headcount student.

C. Methodology

The study's basic methodology included the following steps:

- Following proposal and endorsement of the basic study effort by the NACUBO Two-Year Colleges Committee, a study design was developed, reviewed with staff of NACUBO and CAUSE, and confirmed.

- A mailing list and mailing labels addressed to chief financial/business officers were provided by CAUSE for 999 institutions of the some 1,234 two-year institutions; included were all institutions for which CAUSE files showed names and addresses of chief financial/business officers.

- A questionnaire was developed, reviewed by NACUBO and CAUSE staff, and forwarded over the signature of D. F. Finn, Executive Director of NACUBO, with a request for cooperation to each of the 999 chief business/financial officers.

- The questionnaires were returned to Cuyahoga Community College (CCC), Cleveland, Ohio, which had volunteered to undertake and contribute the programming, processing, and analytical effort.

- CCC developed the programming and conducted test runs on the first returns. CCC also audited all returns, developing a computerized questionnaire audit program for this purpose.

- As a result of initial audits, it became clear that some possibility of misinterpretation existed in regard to one key question in the basic questionnaire. Accordingly, the questionnaire instrument was slightly modified and mailed a second time by Mr. D. F. Finn of NACUBO to institutions that had not yet responded. To help assure a meaningful level of response from the relatively few larger colleges, a special letter was sent to each president/chancellor of the 50 largest two-year institutions urging a response.

- Some 376 questionnaires were ultimately received. Every effort was then made to verify questionable data, mainly through telephone callbacks to individual institutions.

  - A number of quite small colleges (typically of 200-400 student headcounts) indicated they incurred no computer expenditures. If such institutions provided total operating expenditure data, they were counted as a valid data element in the sample; if not, their responses could not be processed and they were excluded.

- Two highly specialized two-year institutions, providing programs only in a single vocational field each and with average per student expenditures ranging up to $25,000 annually, were omitted as inappropriate for inclusion.

- Several institutions provided none of the requested data, reporting merely that their computer services were provided largely or entirely by some type of consortium, frequently a state-level agency. It was necessary to omit this group.

- Based on the audited and corrected computer printouts of data, the results for the remaining 308 useful responses were analyzed, and this present monograph was drafted, reviewed and edited by NACUBO staff, and published.

D. Limitations

As with all such studies, the data contained in this monograph must be utilized with an awareness of their limitations. Principal areas of concern include the following:

- First, 308 responses to a questionnaire sent to 999 of 1,234 two-year institutions does not constitute a scientifically selected and controlled random sample. On the other hand, review of the pool of institutions that did provide meaningful responses suggests no reason why the data should not be broadly representative of the nation's two-year institutions.

- Second, the data are probably least representative for the smallest group of institutions, i.e., those with headcounts of up to 1,000 students. It was here that most of the problems emerged relative to data provided.

  - The experience of those small institutions that have no computer expenditures are still, of course, valid data elements for inclusion in the up-to-1,000 headcount cell. Accordingly, the responses of such institutions were included wherever the institutions also provided information on the essential data element of college total operating expenditures--paired with credit student headcount data secured from the AACJC directory. However, excluding some small institutions with no computer expenditures tends to skew the array so as to show slightly higher ratios and dollar figures at each percentile reporting point than is actually representative of the institutions in this size category.

  - In addition, it was for these very small colleges that the greatest problems emerged in their reported classification of computer costs. However, the process of internal audit, adjustment, and, where needed, direct verification with institutions has meant that distortion of results has been minimized--if not, for all practical purposes, eliminated.

- Third, in a number of instances, data were reported on the wrong line of the questionnaire. Inspection of the returns usually revealed the nature of the error and permitted making needed adjustments. Telephone callbacks were made where this seemed desirable.

- Fourth, as touched on above, another area of problem related to institutions that secure part or all of their computer services through a regional, state-level or other consortium. Some institutions participating in such an arrangement simply indicated that fact, providing no data; excluding them from the present sample is unlikely to have affected the overall averages to any significant extent. Where institutions did receive services from a consortium and reported their share of the consortium's total computer-related costs, that institutional experience was included--as was indeed proper. In next year's survey, all institutions will be asked to report their share of any consortium-incurred costs where known.

- Fifth, a small minority of institutions failed to allocate, as requested, their "normal" computer operating expenditures between those that support administrative processes and those that support academic processes. Rather than program the computer to exclude these institutions from the computations involved, it proved technically simpler to assume for them the same proportional breakdown as was the average experience of the vast bulk of institutions that did provide the requested breakdown; use of this programming shortcut did not materially affect the proportional results reported for the several categories of institutions.

- Sixth, the breakdown of "normal" computer operating expenditures as betweem administrative support and academic support must be regarded as indicative rather than definitive. Allocations by institutions in many instances represented approximate judgments only. In addition, at least three possible bases exist for making such allocations, and it is not known to what extent institutions chose one approach over the others. The first is allocation to academic support of only those incremental or marginal costs incurred over and above those that are in any case required to support essential administrative processes. The second is allocation as between the administrative and academic support categories of those costs that can be directly identified with each category and then arbitrary allocation of remaining central programming and utility function costs on some undisclosed basis. The third is allocation of total computer costs between these two categories on some judgmental basis as to the value of benefits received by the academic and administrative user constituencies.

- Seventh, the CAUSE-provided mailing lists included, in a very few instances, chief financial/business officers both of the central administrations of multi-campus districts and of their component

campuses. Such responses as were received for these overall districts and their individual campuses were incorporated in the study results after checks were made to verify that doing so would not distort results in any significant way.

- Eighth, it is probable that in spite of survey instructions, some institutions reported only those costs incorporated in a central computer operation and budget and omitted at least some computer-related expenditures provided in decentralized parts of their organization and budgets. Certainly underreporting of computer-related expenditures is more likely to have occurred than over-reporting, especially among larger institutions with relatively larger numbers of decentralized computer operations. In consequence, it may at least be speculated that peer group norms reported in this study are marginally understated for the medium-size and larger institutions.

Study results next year are intended to be focussed mainly on two types of ratios and dollar figures (still computed, in both cases, vis-a-vis college total operating expenditures and credit student headcount):

- First, "normal" computer operating expenditures whether provided directly by the institution or contracted for from an outside vendor or consortium.

- Second, total computer-related expenditures including not only "normal" computer operating expenditures but also both development expenditures and capital expenditures whether for equipment lease or purchase.

Comments on improvements in the general study design--as reflected both in this monograph and in the draft questionnaire for next year's study presented in Appendix E--would be very much appreciated (and should be addressed to the author).

II. HOW TO MAKE USE OF THIS STUDY

This section is intended to provide a guide to and assistance in use of this study for purposes of comparison with an individual institution's own experience.

A. Obtain Your Own Institution's Base Data

First, insert below data for your own institution. Utilize definitions set forth in Appendix C. Use latest fiscal year data, preferably 1979-80.

1. Credit Student Headcount--Fall 1979 — SHC _____

2. College Total Operating Expenditures (Current unrestricted and restricted funds including auxiliaries but excluding (major) capital expenditures) — TOC $_____

3. Computer-Related Expenditures

   a. "Normal" Computer Operating Expenditures (including for self-provided services, for any service bureau-provided services, and for your share of any consortium-provided services) — COC $_____

   b. Breakdown of above COC total between shares associated with:

      - o Academic Support — CAcC $_____
      - o Administrative Support — CAdC $_____

   c. Major "One-Shot" Computer-Assisted Systems and Software Development Expenditures — CDC $_____

   d. Computer-Related Capital Expenditures

      - o Computer Equipment Lease Expenditures — CLC $_____
      - o Computer Equipment Capital Expenditures — CCC $_____

   e. Total Computer-Related Expenditures (This will be the sum of the four above figures of COC, CDC, CLC, and CCC) — $_____ (sum of a, b, c, and d)

B. Calculate Results for Your Institution

Second, perform the following calculations:

1. Total Operating Expenditures Per Credit Headcount Student

$$\frac{TOC}{SHC} = \frac{\$_____}{\quad} = \$_____$$

2. Computer-Related Expenditures as Percentages of College Total Operating Expenditures

$$\frac{COC}{TOC} = \frac{\$_____}{\$} = _____\%$$

$$\frac{COC + CLC}{TOC} = \frac{\$_____ + \$_____}{\$} = _____\%$$

$$\frac{COC + CLC + CDC + CCC}{TOC} = \frac{\$_____ + \$_____ + \$_____ + \$_____}{\$} = _____\%$$

$$\frac{COC + CLC + \frac{CDC}{7} + \frac{CCC}{7}}{TOC} = \frac{\$_____ + \$_____ + \frac{\$_____}{7} + \frac{\$_____}{7}}{\$} = _____\%$$

3. Administrative and Academic Support Computer Expenditures as Percentages of "Normal" Computer Expenditures

$$\frac{CAcC}{COC} = \frac{\$_____}{\$} = _____\%$$

$$\frac{CAdC}{COC} = \frac{\$_____}{\$} = _____\%$$

4. Computer-Related Expenditures Per Credit Headcount Student

$\frac{COC}{SHC}$ = $_____ = $_____

$\frac{COC + CLC}{SHC}$ = $____ + $____ = $_____

$\frac{COC + CLC + CDC + CCC}{SHC}$ = $____ + $____ + $____ + $____ = $_____

$\frac{COC + CLC + \frac{CDC}{7} + \frac{CCC}{7}}{SHC}$ = $\frac{\$____ + \$\$____ + \$____ + \$____}{7 \quad 7}$ = $_____

5. Academic and Administrative Support Computer Expenditures Per Credit Headcount Student

$\frac{CAcC}{SHC}$ = $_____ = $_____

$\frac{CAdC}{SHC}$ = $_____ = $_____

C. Compare Your Institution's Experience with Study Results

Third, insert your institution's experience in the space provided in the five tables listed below:

- Section III-B, Table 5
- Section III-C, Tables 6 and 7
- Section III-C, Tables 8 and 9, 10 and 11, 12 and 13, or 14 and 15 depending on your size peer group

If you wish to make the full array of possible comparisons with study data, you may also insert your institution's data alongside of the data in the following four tables:

- Appendix A, Table I

- Appendix A, Table II, III, IV or V, depending on your size peer group

- Appendix B, Table VI

- Appendix B, Table VII, VIII, IX or X, depending on your size peer group

Bear in mind in comparing your institution's data with peer group norms that it is probable that:

- Actual values at the percentiles shown for the category 0-1000 credit headcount students should be slightly lower than shown due to the omission of some institutions with no computer expenditures.

- Actual values at the percentiles shown for the categories of 5001-15000 and, especially, of over 15,000 credit headcount students probably should be somewhat higher than shown due to likely underreporting of some expenditures incurred in decentralized organization units and budgets.

- Allocations of "normal" computer operating expenditures between administrative and academic support typically reflect judgment based on utilization of one of several possible bases for such allocation.

The compelling virtue of this study is that it deals only with major concepts: e.g., headcount, total college operating expenditures, total computer operating expenditures, and the overall breakdown of costs between administrative support and academic support; these "big" numbers are those figures that institutions are able to provide with greatest reliability. In addition, the survey response ratio was extremely high, i.e., one in three, and the number of institutions in each size cell is, statistically speaking, very satisfactory. Although perfectly precise data from all 1,234 two-year colleges would vary from those reported herein, it seems evident that the difference between the two sets of numbers could be expected, percentagewise, to be quite small.

The overall conclusion as to reliability is that this study has produced essentially valid results and that the data may be used for purposes of comparison with the experience of one's own institution with a relatively high degree of confidence.

D. Next Year's Study

It is intended to undertake this study again next winter and spring. For that purpose, the lessons learned from this first effort have been reflected in a revised questionnaire drafted for use the next time around. This draft questionnaire is included as Appendix E.

III. FINDINGS

The findings of this study are presented in three major sub-sections. First is a description of the study design. Second is a comparison of key findings among peer category size groupings. Third is an analysis of key findings within individual peer category size groupings:

A. Study Design

1. The basic study design develops comparative data of two major types, as follows:

   - First, computer expenditures in relation to college total operating expenditures. Tables I to V of Appendix A present the basic survey data findings in relation to college total operating expenditures.

   - Second, computer expenditures in relation to college credit student headcount. Tables VI to X of Appendix B present the basic survey data findings in relation to credit student headcount.

2. Within each of these two categories, five sets of data are presented--i.e., for all institutions and for each of the four peer category size groupings--as follows:

   - All institutions.
   - Institutions with up to 1,000 credit student headcount.
   - Institutions with 1,001 to 5,000 credit student headcount.
   - Institutions with 5,001 to 15,000 credit student headcount.
   - Institutions with over 15,000 credit student headcount.

   Participating institutions classified by peer category size groupings are listed in Appendix D.

3. For each of these five institutional groupings, data are provided for five percentiles, as follows:

   - The 12.5th percentile, which indicates the modal figure for the first, or lowest, quarter of responses in the array of institutions.
   - The 37.5th percentile, which indicates the modal figure for the second quarter of responses in the array.

- The 50th percentile, which indicates the median figure for all institutions in the array, i.e., a value whose characteristic is such that as many responses are below as are above it.

- The 62.5th percentile, which indicates the modal figure for the third quarter of responses in the array.

- The 87.5th percentile, which indicates the modal figure for the fourth or highest quarter of responses in the array.

4. These matrices are then used to define and express the substantive survey data, i.e., (1) various categories of computer expenditures as percentages of total college operating expenditures, (2) various categories of computer expenditures per credit headcount student, and (3) academic and administrative computer expenditures as percentages of "normal" computer operating expenditure.

   Four sets of computer expenditures are calculated for comparison with college total operating expenditures and with credit student headcount:

   - First is "normal" computer operating expenditures, i.e., the ongoing operating costs of a college's computer function.

   - Second is the sum of these "normal" computer operating expenditures and of computer lease expenditures defined as "costs for lease of computer hardware". This sum totals the amounts that make up the annual "ongoing" costs of a college's computer activities.

   - Third is the sum of (1) these "normal" computer operating expenditures and ongoing lease expenditures plus (2) computer development expenditures and computer capital purchase expenditures. This sum totals all computer-related outlays by the institution for the year, both "ongoing" and "one-shot".

   - Fourth is the immediately above total of all computer expenditure categories but with major "one-shot" development and capital purchase costs amortized over a seven-year period (a period conventional to the computer industry). The shortcoming of this latter approach is that no practical means exist to collect and add in one-seventh of such expenditures made by institutions over the six preceding years--which, however, on this "accounting" premise, should also be charged against the year in question.

   In addition "normal" computer operating expenditures allocated to academic and to administrative costs are calculated for comparison with the total of such "normal" computer operating expenditures and with credit student headcount.

The computer calculations of the above data are provided in Tables I through V in Appendix A and Tables VI through X in Appendix B. Definitions of terms are found in the basic questionnaire, reproduced in Appendix C.

However, particularly because of the earlier described statistical problem of amortization of development and capital expenditures relating to the fourth group of calculations defined above, the values that may be regarded as being the most useful to institutions for purposes of peer category comparisons are those that represent:

- first, ongoing "normal" computer operating expenditures, the first set of calculations defined above, and
- second, the total of all computer-related expenditures, the third set defined above.

These are the statistics that together--with the breakdown of "normal" computer operating expenditures between academic and administrative support--are provided in the textual tables below. As noted previously, the second set will, for some institutions, include major "one-shot" development and capital costs incurred in the survey year that might well be amortized over several years. However, this "overstatement" of development and capital costs for some institutions in this most recent year will be offset in the peer group totals by the "understatement" of such expenditures for other institutions represented by such "one-shot" costs incurred in previous years but not amortized forward into the survey totals for the year in question.

5. Study findings are for several reasons based on headcount statistics. These are the standard enrollment statistics reported to and by the AACJC. They do not require special rules for translation into FTES. They are a suitable basis for a sort of institutions by size for purposes of this analysis. In addition, many categories of computer expenditures--e.g., for such student services as enrollment, student billing, and grade recording--vary more directly in proportion to student headcount than to some theoretically-calculated full-time equivalent student value.

6. Finally, institutions were requested to supply data for their most recent 12-month accounting period and, in the great bulk of cases, did so for the 1979-80 year.

B. Comparison of Key Findings Among Peer Category Size Groupings

Following is a summary of key findings among institutional groupings.

1. Computer Expenditures as Percent of Total College Operating Expenditures

Tables 1 and 2 below show, for all institutional groupings, summary results for "normal" computer operating expenditures and for total computer-related expenditures as percentages of college total operating expenditures.

Table 1. "Normal" Computer Operating Expenditures as Percent of College Total Operating Expenditures

	No. in Sample	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
All Institutions	308	0.3%	1.4%	1.9%	2.4%	4.2%
0 - 1,000	45	0.0%	0.1%	0.2%	0.6%	2.9%
1,001 - 5,000	146	0.4%	1.4%	1.9%	2.2%	3.8%
5,001 - 15,000	79	0.9%	1.9%	2.4%	3.0%	4.6%
Over 15,000	38	1.0%	2.0%	2.1%	2.8%	4.9%

- In general, the proportion of college total operating expenditures spent for "normal" computer operating expenditures increased with size of institutions.
- Median (or 50th percentile) figures for "normal" computer expenditures ranged from 0.2% for the 0 - 1,000 size institution to 2.4% for the 5,001 - 15,000 student group and 2.1% for the over 15,000 group. Modal figures for the upper quarter ranged from 2.9% to 4.9%.

Table 2. Total Computer-Related Expenditures as Percent of College Total Operating Expenditures

	No. in Sample	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
All Institutions	308	0.6%	2.2%	2.7%	3.5%	6.4%
0 - 1,000	45	0.0%	0.1%	0.6%	0.8%	4.4%
1,001 - 5,000	146	1.0%	2.0%	2.4%	3.1%	5.9%
5,001 - 15,000	79	1.3%	2.9%	3.5%	4.2%	6.8%
Over 15,000	38	1.5%	2.9%	3.6%	4.2%	8.6%

- Median figures for total computer-related expenditures ranged from 0.6% for the smallest institutions to 3.6% for the largest. Modal figures for the upper quartile ranged from 4.4% to 8.6% respectively.

- While not shown here, for the 308 institutions as a whole and for the three larger size groups, about a third of "normal" computer operating expenditures for the median institutions were for academic support and about two-thirds for administrative support (see tables in Appendix A).

2. Computer-Related Expenditures Per Credit Headcount Student

Tables 3 and 4 below show, for all institutional groupings, summary results for "normal" computer operating expenditures and for total computer-related expenditures per credit headcount student .

Table 3. "Normal" Computer Operating Expenditures Per Credit Headcount Student

	No. in Sample	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
All Institutions	308	$ 5	$20	$27	$33	$62
0 - 1,000	45	0	3	6	11	90
1,001 - 5,000	146	6	22	29	35	60
5,001 - 15,000	79	10	22	29	33	54
Over 15,000	38	7	21	26	29	44

- For the three larger institutional categories, "normal" computer operating expenditures ranged at the medians from $26 to $29 per credit headcount student, $29 to $35 per student as the modal figures for the third quarter, and $44 to $60 per student as the modal figures for the upper quarter.

Table 4. Total Computer-Related Expenditures Per Credit Headcount Student

	No. in Sample	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
All Institutions	308	$ 7	$30	$38	$49	$103
0 - 1,000	45	0	3	9	39	150
1,001 - 5,000	146	12	30	38	49	97
5,001 - 15,000	79	10	33	41	47	89
Over 15,000	38	12	31	39	49	79

- Per student expenditures for total computer-related costs for the three larger categories of institutions ranged at the median from $38 to $41 per student, $47 to $49 as the modal figures for the third quarter, and $79 to $97 as the modal figures for the upper quarter.

- These two tables thus show that while expenditures per student were much less for the 0-1,000 student institutions than for the larger categories, experience did not differ greatly among the three larger categories for most percentiles reported on.

3. College Total Operating Expenditures Per Credit Headcount Student

Tables 1 and 2 above indicated that computer expenditures as a percent of college total operating expenditures increased substantially as size of peer group increased. Tables 3 and 4 indicated that computer expenditures among the three larger peer groups of institutions were more or less similar per credit headcount student. The explanation for this is necessarily found in college total operating expenditures per student that on the average decrease with increasing size of institutional peer groups. This progression is shown below.

Table 5. College Total Operating Expenditures Per Credit Headcount Student

	Your College	No. in Sample	Percentiles 12.5th	37.5th	50th	62.5th	87.5th
All Institutions	$_____	308	$ 893	$1,243	$1,473	$1,780	$2,807
0 - 1,000	$_____	45	1,732	2,443	2,977	3,569	4,593
1,001 - 5,000	$_____	146	1,038	1,421	1,708	1,906	2,458
5,001 - 15,000	$_____	79	843	1,062	1,147	1,254	1,600
Over 15,000	$_____	38	644	915	993	1,111	1,484

As this table indicates, per credit headcount student costs in all percentile categories decline significantly for each successively larger group of institutions. The principal reason for this appears to be that, on the average, the larger the institution, the higher the ratio of credit headcount students to full-time equivalent students (i.e., the larger the percentage of students taking only a few credits)--and thus the lower the level of college total operating costs per headcount student. As probably a lesser factor, the

smaller institutions include a higher percentage of private institutions with considerably higher budgets relative to student numbers than do the larger categories.

This analysis has not been provided in this monograph for the purpose of communicating new information on college expenditures per student. Instead, it is provided simply to explain how it is that computer costs per headcount student can be relatively similar among institutions of different sizes whereas percentages of college total operating expenditures spent for computer-related services increase as the student size of the peer group category increases. It is believed that calculations based on full-time equivalent student numbers would tend to show computer costs per headcount student increasing with peer group size as do computer-related expenditures as percentages of college total operating expenditures.

C. Comparison of Key Findings Within Peer Category Size Groupings

This section reports on categories of computer expenditures in relation to college total operating expenditures and to credit student headcount. Selected survey results are analyzed first for all 308 institutions and then for each size peer group. Two tables are presented in each sub-section.

- The first table summarizes the key findings for four ratios relating to college total operating expenditures, as follows:
  - First, "normal" computer operating expenditures as a percent of college total operating expenditures.
  - Second, total computer-related expenditures as a percent of college total operating expenditures.
  - Third, academic program computer support as a percent of "normal" computer operating expenditures.
  - Fourth, administrative program computer support as a percent of "normal" computer operating expenditures.
- The second table in each sub-section summarizes per credit headcount student expenditures for these same four categories of computer expenditures.

Tables I through V in Appendix A and Tables VI through X in Appendix B present added ratios. Appendix C provides definitions of terms utilized in this study.

1. Category I: All 308 Reporting Institutions in the Sample

As noted earlier, some 308 institutions provided valid and usable responses to this survey. The following table summarizes for this total of all institutions (1) computer expenditures in relation to college total operating expenditures and (2) the allocation of "normal" computer operating expenditures between academic and administrative support.

Table 6. Computer Expenditures as Percent of College Total Operating Expenditures and Allocation between Academic and Administrative Support--All 308 Institutions

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{TOC}$	____%	0.3%	1.4%	1.9%	2.4%	4.2%
$\frac{COC + CLC + CDC + CCC}{TOC}$	____%	0.6%	2.2%	2.7%	3.5%	6.4%
$\frac{CAcC^*}{COC}$	____%	0.0%	20.0%	30.0%	40.0%	63.0%
$\frac{CAdC^*}{COC}$	____%	20.8%	52.8%	64.0%	74.1%	98.2%

*With regard to the last two rows of percentage statistics in this and subsequent similar tables, because each statistic has a different institution at its percentile values, proportions do not add to 100%. They come closest to doing so at the 50th percentile, or median, value; the sum of lower percentiles will generally add to much less than 100% while the sum of higher percentiles will tend to exceed 100%.

- For all 308 participating institutions the median experience was "normal" computer operating expenditures at 1.9% of college total operating expenditures and all computer-related expenditures at 2.7%. Modal figures for the upper quarter of all institutions were 4.2% and 6.4%, respectively.*

- The median experience showed 30% of "normal" computer operating expenditures for academic support and 64% for administrative support.** Modal figures for the upper quarter were 63% and 98.2%, respectively respectively.

The following table summarizes the key statistics for computer expenditures in relation to credit headcount student:

Table 7 - Computer Expenditures Per Credit Headcount Student--All 308 Institutions

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{SHC}$	$_____	$ 5	$ 20	$ 27	$ 33	$ 62
$\frac{COC + CLC + CDC + CCC}{SHC}$	$_____	7	30	38	49	103
$\frac{CAcC^{**}}{SHC}$	$_____	0	4	7	10	25
$\frac{CAdC^{**}}{SHC}$	$_____	2	12	15	20	44

*Comparisons in the text are made with the median experience for the entire group as the most representative figures available. Comparisons are also made with the modal figure for the upper quarter of institutions on the assumption that readers of this monograph will be particularly interested in the experience of colleges whose expenditure ratios indicate a major commitment for utilization of the computer in the work of the institution.

**The last two rows of dollar statistics in this and subsequent similar tables will typically not add to the dollar values in the first row because each statistic has a different institution at its percentile value.

- The median experience for "normal" computer operating expenditures was $27 per credit headcount student and $38 for total computer-related expenditures. Modal figures for the upper quarter were $62 and $103, respectively.

- Medians for "normal" computer operating expenditures per credit headcount student were $7 each for academic support and $15 for administrative support. The comparable modal data for the upper quarter of institutional experience were $25 and $44 per student, respectively.

2. Category II: Institutions with Credit Headcount Enrollment of 0 - 1,000 Students

Some 45 institutions of up to 1,000 students provided useful results. As noted earlier, a number of very small institutions reported that they had no computer-related expenditures. Those with no computer-related expenditures that also reported total operating expenditures were included in these statistics as valid data elements while those that did not do so necessarily were excluded. As a result, the number of institutions reported on in the lower end of the array for this size group category is understated in relation to the total of responses received, and all percentile values reported are, consequently, somewhat overstated.

The following table summarizes these results in relation to college total operating expenditures and shows the allocation of "normal" computer operating expenditures between academic and administrative support.

Table 8. Computer Expenditures as Percent of College Total Operating Expenditures and Allocation between Academic and Administrative Support--0 - 1,000 Student Category

		Percentiles				
	Your College	12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{TOC}$	____%	0.0%	0.1%	0.2%	0.6%	2.9%
$\frac{COC + CLC + CDC + CCC}{TOC}$	____%	0.0%	0.1%	0.6%	0.8%	4.4%
$\frac{CAcC}{TOC}$	____%	0.0%	0.0%	0.0%	13.9%	60.0%
$\frac{CAdC}{TOC}$	____%	0.0%	25.0%	64.0%	76.8%	100.0%

- Medians for "normal" computer operating expenditures were 0.2% of college total operating expenditures and for total computer-related expenditures were 0.6%. Modal results for the upper quarter were 2.9% and 4.4%, respectively.

- The median experience showed 0% of the "normal" computer operating expenditures for academic support and 64.0% for administrative support. Modal figures for the upper quarter were 60% and 100%, respectively.

The following table summarizes expenditures per credit student headcount for this size category:

Table 9 - Computer Expenditures Per Credit Headcount Student--
0 - 1,000 Student Category

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{SHC}$	$_____	$ 0	$ 3	$ 6	$ 11	$ 90
$\frac{COC + CLC + CDC + CCC}{SHC}$	$_____	0	3	9	39	150
$\frac{CAcC}{SHC}$	$_____	0	0	0	2	19
$\frac{CAdC}{SHC}$	$_____	0	1	4	9	57

- For the median institution, "normal" computer operating expenditures per credit headcount student were $6 and total computer-related expenditures were $9. Modal experience for the upper quarter of institutions was $90 and $150, respectively.

- Medians for "normal" computer operating expenditures per credit headcount student were $0 for academic support and $4 for administrative support. Comparable data for the upper quarter were $19 and $57 per student, respectively.

3. Category III: Institutions with Credit Headcount Enrollment of 1,001 - 5,000 Students

Some 146 institutions reported in this size category. The following table summarizes for these 146 institutions (1) computer expenditures in relation to college total operating expenditures and (2) the allocation of "normal" computer operating operations between academic and administrative support.

Table 10. Computer Expenditures as Percent of College Total Operating Expenditures and Allocation between Academic and Administrative Support--1,001 - 5,000 Student Category

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{TOC}$	____%	0.4%	1.4%	1.9%	2.2%	3.8%
$\frac{COC + CLC + CDC + CCC}{TOC}$	____%	1.0%	2.0%	2.4%	3.1%	5.9%
$\frac{CAcC}{TOC}$	____%	0.0%	20.0%	33.1%	41.3%	67.8%
$\frac{CAdC}{TOC}$	____%	23.4%	49.7%	60.3%	71.8%	100.0%

- Medians for "normal" computer operating expenditures were 1.9% of college total operating expenditures and 2.4% for total computer-related expenditures. Modal data for the upper quarter were 3.8% and 5.9%, respectively.

- The median figures were 33.1% of total "normal" computer operating expenditures for academic support and 60.3% for administrative support. Modal data for the upper quarter were 67.8% and 100%, respectively.

The following table shows computer expenditures per credit headcount student for this size category.

Table 11. Computer Expenditures Per Credit Headcount Student--1,001 - 5,000 Student Category

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{SHC}$	$_____	$ 6	$ 22	$ 29	$ 35	$ 60
$\frac{COC + CLC + CDC + CCC}{SHC}$	$_____	12	30	38	49	97
$\frac{CAcC}{SHC}$	$_____	0	4	8	12	27
$\frac{CAdC}{SHC}$	$_____	3	12	15	20	38

- The median institutions spent $29 per credit headcount student for "normal" computer operating expenditures and $38 for total computer-related expenditures. Modal data for the upper quarter were $60 and $97, respectively.

- The median figures were $8 per student for "normal" computer operating expenditures for academic support and $15 per credit headcount student for total computer-related expenditures. Modal figures for the upper quarter were $27 and $38 per student, respectively.

4. Category IV: Institutions with Credit Headcount Enrollment of 5,001 - 15,000 Students

Some 79 institutions provided responses in this size category. Data on (1) computer expenditures in relation to college total operating expenditures and (2) the allocation of "normal" computer expenditures between academic and administrative support are shown below:

Table 12. Computer Expenditures as Percent of College Total Operating Expenditures and Allocation Between Academic and Administrative Support--5,001 - 15,000 Student Category

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{TOC}$	____%	0.9%	1.9%	2.4%	3.0%	4.6%
$\frac{COC + CLC + CDC + CCC}{TOC}$	____%	1.3%	2.9%	3.5%	4.2%	6.8%
$\frac{CAcC}{COC}$	____%	8.3%	28.0%	34.9%	44.1%	60.0%
$\frac{CAdC}{COC}$	____%	37.5%	51.2%	60.5%	70.7%	89.5%

These larger institutions spent higher percentages of their budgets for computer services than did the 0 - 1,000 credit student headcount group.

- The median institution spent 2.4% of college total operating expenditures for "normal" computer operating expenditures and 3.5% for total computer-related expenditures. Modal figures for the upper quarter were 4.6% and 6.8%, respectively.

- The median institutions spent 34.9% of "normal" computer operating expenditures for academic support and 60.5% for administrative support. Modal figures for the upper quarter were 60% and 89.5%, respectively.

The following table summarizes computer expenditures per credit headcount student for this size category:

Table 13 - Computer Expenditures Per Credit Headcount Student--5,001 - 15,000 Student Category

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{SHC}$	$_____	$ 10	$ 22	$ 29	$ 33	$ 54
$\frac{COC + CLC + CDC + CCC}{SHC}$	$_____	10	33	41	47	89
$\frac{CAcC}{SHC}$	$_____	2	6	7	10	22
$\frac{CAdC}{SHC}$	$_____	4	14	16	22	37

- The median institutions spent $29 per credit headcount student for "normal" computer operating expenditures and $41 for total computer-related expenditures. Modal figures for the upper quarter were $54 and $89, respectively.

- The median figures for "normal" computer operating expenditures were $7 per student for academic support and $16 for administrative support. Comparable modal figures for the upper quarter were $22 and $37, respectively.

5. Category V: Institutions with Credit Headcount Enrollment of Over 15,000 Students

Some 38 institutions reported in this largest size category. The following table shows (1) computer expenditures in relation to college total operating expenditures and (2) the allocation of "normal" computer expenditures between academic and administrative support.

Table 14 - Computer Expenditures as Percent of College Total Operating Expenditures and Allocation between Academic and Administrative Support--Over 15,000 Student Category

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{TOC}$	____%	1.0%	2.0%	2.1%	2.8	4.9%
$\frac{COC + CLC + CDC + CCC}{TOC}$	____%	1.1%	2.4%	2.7%	3.6%	6.0%
$\frac{CAcC}{COC}$	____%	4.8%	20.0%	29.4%	36.0%	50.0%
$\frac{CAdC}{COC}$	____%	48.3%	60.4%	70.0%	75.0%	92.5%

- The median institutions spent 2.1% of college total operating expenditures for "normal" computer operating expenditures and 2.7% for total computer-related expenditures. Modal figures for the upper quarter were 4.9% and 6.0%, respectively.

- The median figures were 29.4% of "normal" computer operating expenditures for academic support and 70% for administrative support. Modal figures for the upper quarter were 50% and 92.5%, respectively.

The following table shows computer expenditures per credit headcount student for this size category.

Table 15. Computer Expenditures Per Credit Headcount Student--Over 15,000 Student Category

	Your College	Percentiles				
		12.5th	37.5th	50th	62.5th	87.5th
$\frac{COC}{SHC}$	$_____	$ 7	$ 21	$ 26	$ 29	$ 44
$\frac{COC + CLC + CDC + CCC}{SHC}$	$_____	12	31	39	49	79
$\frac{CAcC}{SHC}$	$_____	1	3	6	9	14
$\frac{CAdC}{SHC}$	$_____	5	13	14	20	44

- The medians of these largest institutions spent $26 per credit headcount student for "normal" computer operating expenditures and $39 for total computer-related expenditures. Modal figures for the upper quarter were $44 and $79, respectively.

- The median figures for "normal" computer operating expenditures were $6 per student for academic support and $14 for administrative support. Modal figures for the upper quarter of this group were $14 and $44, respectively.

* * * * *

This monograph has presented the results of a "first-ever" study of nationwide experienced "norms" of the allocations by two-year colleges of resources to the computer function. It is hoped that the results will prove useful both to the two-year colleges and to the broader higher education constituency.

APPENDIX A

COMPARATIVE COMPUTER EXPENDITURES IN RELATION TO COLLEGE TOTAL OPERATING EXPENDITURES

TABLE I

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Operating Expenses as Denominator)

All 308 Reporting Institutions In the Sample

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / TOC	308	0.3	1.4	1.9	2.4	4.2
(COC + CLC) / TOC	308	0.5	1.7	2.2	2.8	5.4
(COC+CLC+CDC+CCC) / TOC	308	0.6	2.2	2.7	3.5	6.4
(COC+CLC+CDC/A+CCC/A) / TOC	308	0.5	1.8	2.3	3.0	5.5
CAcC / TOC	308	0.	0.3	0.5	0.8	1.7
CAdC / TOC	308	0.1	0.8	1.1	1.5	2.6
CAcC / COC	308	0.	20.0	30.0	40.0	63.0
CAdC / COC	308	20.8	52.8	64.0	74.1	98.2

LEGEND :
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Costs Amortized Over 7 Years
CCC/A = Computer Capital Costs Amortized Over 7 Years
COC = Computer Operating Costs
TOC = Total College Operating Costs

TABLE II

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Operating Expenses as Denominator)

Category 1 - Headcount Enrollment up to 1,000 students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87. Pct (%
COC / TOC	45	0.	0.1	0.2	0.6	2.9
COC + CLC / TOC	45	0.	0.1	0.2	0.7	3.5
COC+CLC+CDC+CCC / TOC	45	0.	0.1	0.6	0.8	4.4
COC+CLC+CDC/A+CCC/A / TOC	45	0.	0.1	0.3	0.7	3.5
CAcC / TOC	45	0.	0.	0.	0.1	0.8
CAdC / TOC	45	0.	0.1	0.2	0.4	1.6
CAcC / COC	45	0.	0.	0.	13.9	60.0
CAdC / COC	45	0.	25.0	64.0	76.8	100.0

LEGEND :
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Costs Amortized Over 7 Years
CCC/A = Computer Capital Costs Amortized Over 7 Years
COC = Computer Operating Costs
TOC = Total College Operating Costs

TABLE III

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Operating Expenses as Denominator)

Category 2 - Headcount Enrollment Between 1001-5000 Students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / TOC	146	0.4	1.4	1.9	2.2	3.8
COC + CLC / TOC	146	0.7	1.7	2.2	2.6	4.4
COC+CLC+CDC+CCC / TOC	146	1.0	2.0	2.4	3.1	5.9
COC+CLC+CDC/A+CCC/A / TOC	146	0.7	1.7	2.2	2.7	4.9
CAcC / TOC	146	0.	0.2	0.5	0.8	1.7
CAdC / TOC	146	0.2	0.8	1.0	1.4	2.3
CAcC / COC	146	0.	20.0	33.1	41.3	67.8
CAdC / COC	146	23.4	49.7	60.3	71.8	100.0

LEGEND :
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Costs Amortized Over 7 Years
CCC/A = Computer Capital Costs Amortized Over 7 Years
COC = Computer Operating Costs
TOC = Total College Operating Costs

TABLE IV

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Operating Expenses as Denominator)

Category 3 - Headcount Enrollment Between 5001-15000 Students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
$\frac{COC}{TOC}$	79	0.9	1.9	2.4	3.0	4.6
$\frac{COC + CLC}{TOC}$	79	1.3	2.2	3.1	3.7	6.0
$\frac{COC+CLC+CDC+CCC}{TOC}$	79	1.3	2.9	3.5	4.2	6.8
$\frac{COC+CLC+CDC/A+CCC/A}{TOC}$	79	1.3	2.2	3.1	3.8	6.0
$\frac{CAcC}{TOC}$	79	0.2	0.6	0.7	0.9	1.7
$\frac{CAdC}{TOC}$	79	0.5	1.1	1.6	1.8	3.1
$\frac{CAcC}{COC}$	79	8.3	28.0	34.9	44.1	60.0
$\frac{CAdC}{COC}$	79	37.5	51.2	60.5	70.7	89.5

LEGEND :
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Costs Amortized Over 7 Years
CCC/A = Computer Capital Costs Amortized Over 7 Years
COC = Computer Operating Costs
TOC = Total College Operating Costs

TABLE V

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Operating Expenses as Denominator)

Category 4 - Headcount Enrollment of 15001 and Above Students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / TOC	38	1.0	2.0	2.1	2.8	4.9
COC + CLC / TOC	38	1.1	2.4	2.7	3.6	6.0
COC+CLC+CDC+CCC / TOC	38	1.5	2.9	3.6	4.2	8.6
COC+CLC+CDC/A+CCC/A / TOC	38	1.4	2.4	3.0	3.8	6.2
CAcC / TOC	38	0.1	0.4	0.6	0.8	1.5
CAdC / TOC	38	0.6	1.3	1.6	1.8	3.9
CAcC / COC	38	4.8	20.0	29.4	36.0	50.0
CAdC / COC	38	48.5	60.4	70.0	75.0	92.5

LEGEND :
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Costs Amortized Over 7 Years
CCC/A = Computer Capital Costs Amortized Over 7 Years
COC = Computer Operating Costs
TOC = Total College Operating Costs

APPENDIX B

COMPARATIVE COMPUTER EXPENDITURES IN RELATION TO TOTAL STUDENT HEADCOUNT

TABLE VI

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Student Head Count as Denominator)

Summary of Report Group I
Total No. of Institutions Reporting in Sample : 308

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / SHC	308	5	20	27	33	62
COC + CLC / SHC	308	6	24	33	40	82
COC+CLC+CDC+CCC / SHC	308	7	30	38	49	103
COC+CLC+CDC/A+CCC/A / SHC	308	7	25	34	42	88
CAcC / SHC	308	0	4	7	10	25
CAdC / SHC	308	2	12	15	20	44
TOC / SHC	308	893	1243	1473	1780	2807

LEGEND :
COC = Computer Operating Costs
TOC = Total College Operating Costs
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Cost Amortized over 7 years
CCC/A = Capital Cost Amortized over 7 years
SHC = Student Head Count

TABLE VII

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Student Head Count as Denominator)

Category 1 - Headcount Enrollment up to 1000 Students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / SHC	45	0	3	6	11	90
COC + CLC / SHC	45	0	3	7	15	119
COC+CLC+CDC+CCC / SHC	45	0	3	9	39	150
COC+CLC+CDC/A+CCC/A / SHC	45	0	3	9	17	119
CAcC / SHC	45	0	0	0	2	19
CAdC / SHC	45	0	1	4	9	57
TOC / SHC	45	1732	2443	2977	3569	4593

LEGEND :
COC = Computer Operating Costs
TOC = Total College Operating Costs
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Cost Amortized over 7 years
CCC/A = Capital Cost Amortized over 7 years
SHC = Student Head Count

TABLE VIII

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Student Head Count as Denominator)

Category 2 - Headcount Enrollment Between 1001-5000 Students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / SHC	146	6	22	29	35	60
COC + CLC / SHC	146	10	27	33	43	78
COC+CLC+CDC+CCC / SHC	146	12	30	38	49	97
COC+CLC+CDC/A+CCC/A / SHC	146	10	27	34	44	81
CAcC / SHC	146	0	4	8	12	27
CAdC / SHC	146	3	12	15	20	38
TOC / SHC	146	1038	1421	1708	1906	2458

LEGEND :
COC = Computer Operating Costs
TOC = Total College Operating Costs
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Cost Amortized over 7 years
CCC/A = Capital Cost Amortized over 7 years
SHC = Student Head Count

TABLE IX

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Student Head Count as Denominator)

Category 3 - Headcount Enrollment Between 5001-15000 Students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / SHC	79	10	22	29	33	54
COC + CLC / SHC	79	10	27	37	41	78
COC+CLC+CDC+CCC / SHC	79	10	33	41	47	89
COC+CLC+CDC/A+CCC/A / SHC	79	10	27	38	42	78
CAcC / SHC	79	2	6	7	10	22
CAdC / SHC	79	4	14	16	22	37
TOC / SHC	79	843	1062	1147	1254	1600

LEGEND :
COC = Computer Operating Costs
TOC = Total College Operating Costs
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Cost Amortized over 7 years
CCC/A = Capital Cost Amortized over 7 years
SHC = Student Head Count

TABLE X

COMPUTER EXPENDITURES FOR COMMUNITY AND JUNIOR COLLEGES FOR MOST RECENT YEAR

Report Group I (Using Total Student Head Count as Denominator)

Category 4 - Headcount Enrollment of 15001 and Above Students

	No. in Calc.	Distribution of Computer Expenditures 12.5th Pctile (%)	37.5th Pctile (%)	50th Pctile (%)	62.5th Pctile (%)	87.5th Pctile (%)
COC / SHC	38	7	21	26	29	44
COC + CLC / SHC	38	10	24	36	37	53
COC+CLC+CDC+CCC / SHC	38	12	31	39	49	79
COC+CLC+CDC/A+CCC/A / SHC	38	10	24	37	39	54
CAcC / SHC	38	1	3	6	9	14
CAdC / SHC	38	5	13	14	20	44
TOC / SHC	38	644	915	993	1111	1484

LEGEND :
COC = Computer Operating Costs
TOC = Total College Operating Costs
CDC = Computer Development Costs
CLC = Computer Lease Costs
CCC = Computer Capital Costs
CAcC = Computer Academic Costs
CAdC = Computer Administrative Costs
CDC/A = Computer Development Cost Amortized over 7 years
CCC/A = Capital Cost Amortized over 7 years
SHC = Student Head Count

APPENDIX C

QUESTIONNAIRE INSTRUMENT INCLUDING DEFINITION OF TERMS

Following is the questionnaire utilized for the survey, incorporating February 1980 revisions. It includes a definition of terms used in the study. It has been further modified to make its abbreviations of terms consistent with those used in the summary tables as the text of this monograph.

NACUBO QUESTIONNAIRE

COMPUTER COSTS

A. Data Requested (for single year only)

For Latest 12-Month Period
_____19__ - _____19__

1.	Total College Current Operating Expenditures	TOC	$_____
2.	Computer-Related Operating Expenditures (total of #6 and #7 below)	COC	$_____
3.	Computer-Related Development Expenditures	CDC	$_____
4.	Computer-Related Lease Expenditures	CLC	$_____
5.	Computer-Related Capital Expenditures	CCC	$_____
6.	Computer-Related Operating Expenditures-Academic/Instructional	CAcC	$_____
7.	Computer-Related Operating Expenditures-Administrative	CAdC	$_____
8.	Fall 1979 Student Head Count	SHC	$_____

9. Is your institution Public?_____ Private?_____

10. Name of Institution_____

11. Person Completing Questionnaire (who could be contacted if necessary)

_____Telephone:_____

B. Definitions

TOC = Total College Operating Expenditures = Current General Fund including both unrestricted and restricted funds (includes Auxiliary Enterprises; excludes (major) Capital Expenditures). This figure solicits total College Operating Expenditures, not those limited to computer activities.

COC = Total Computer-Related Operating Expenditures = Operating costs for computer center, computer service personnel, remote terminals, leased lines, computer maintenance costs, steady state and routing programming, computer-related supplies whether in the computer center's or user's budgets, and the like.

CDC = Total Computer-Related Development Expenditures = Cost incurred for special one-shot, significant software development activities, e.g., costs of procurement of software packages, employment of outside technical consultants, and the like.

CLC = Total Computer-Related Lease Expenditures = Costs for lease of computer hardware.

CCC = Total Computer-Related Capital Expenditures = Costs for purchase of computer hardware.

CAcC = Total Computer-Related Operating Expenditures-Academic/Instructional = The Academic/Instructional cost portion of Total Computer-Related Operating Expenditures (broken down as arbitrarily as necessary). Includes computer-assisted instruction, computer-managed instruction, simulation, gaming, problem solving and other support to students and faculty in the academic/instructional process. (Excludes data processing curricular costs except for hardware and software and directly related supplies and other costs required for equipment operation; thus, excludes data processing faculty compensation and general instructional support.)

CAdC = Total Computer-Related Operating Expenditures-Administrative = The administrative cost portion of Total Computer-Related Operating Expenditures (broken down as arbitrarily as necessary). Includes financial management systems, payroll/personnel, student registration and information, academic effort accounting, and other uses not directly supporting the pedagogical process.

NOTE: Please, again, be sure, first, that Item 1 provides your college's total operating expenditures rather than just those for computers and, second, that Items 6 and 7 total to Item 2 (being as arbitrary in your allocation as you find necessary).

NOTE: CAcC plus CAdC = COC.

APPENDIX D

COMPOSITION OF PARTICIPATING COLLEGE PEER GROUPS

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT BETWEEN 0 - 1000

NAME	STATE
American Academy of Art, Inc	Illinois
Andover College	Maine
Bacone College	Oklahoma
Bay Path Junior College	Massachusetts
Bethany Lutheran College	Minnesota
Brewer State Junior College	Alabama
Chesterfield-Marlboro Technical College	South Carolina
Crowder College	Missouri
Dodge City Community Junior College	Kansas
Donnelly College	Kansas
East Central Junior College	Mississippi
Emmanuel College	Georgia
Emanuel County Junior College	Georgia
Feather River College	California
Hartford College for Women	Connecticut
Hill Junior College	Texas
Jacksonville College	Texas
Kansas Technical Institute	Kansas
Laboure Junior College	Massachusetts
Lakeland College	Florida
Lamar Community College	Colorado
Lees McRae College	North Carolina
Maria Regina College	New York
Martin College	Tennessee
Michigan Christian Junior College	Michigan
Mount Aloysius Junior College	Pennsylvania
Nash Technical Institute	North Carolina
Nazarene Bible College	Colorado
New Mexico Military Institute	New Mexico
North Dakota State University - Bottineau	North Dakota
Ohio Valley College	West Virginia
Otero Junior College	Colorado
Peace College	North Carolina
Reinhardt College	Georgia
Sampson Technical College	North Carolina
Sinte Gleska College Center	South Dakota
Southern Arkansas University	Arkansas
St. Gregory's College	Oklamona
Stevens Henager College	Utah
Suomi College	Michigan
Thames Valley State Technical College	Connecticut
Trocaire College	New York
Waycross Junior College	Georgia
West Shore Community College	Michigan
Wood Junior College	Mississippi

Total in this Category = 45

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT BETWEEN 1001 - 5000

NAME	STATE
Adirondack Community College	New York
Aiken Technical College	South Carolina
Aims Community College	Colorado
Albany Junior College	Georgia
Alexander City State Junior College	Alabama
Allegany Community College	Maryland
Alvin Community College	Texas
Angelina College	Texas
Arizona Western College	Arizona
Becker Junior College	Massachusetts
Blue Mountain Community College	Oregon
Brazosport College	Texas
Caldwell Community College	North Carolina
Cape Cod Community College	Massachusetts
Cayuga County Community College and Technical Institute	New York
Cecil Community College	Maryland
Cedar Valley College	Texas
Central Florida Community College	Florida
Central New England College	Massachusetts
Central Oregon Community College	Oregon
Central Texas College	Texas
Charles County Community College	Maryland
Chattanooga State Technical Community College	Tennessee
Chowan College	North Carolina
Clackamas Community College	Oregon
Clark Technical College	Ohio
Clatsop Community College	Oregon
Clayton Junior College	Georgia
Clermont General and Technical College	Ohio
Coastal Carolina Community College	North Carolina
Cochise College	Arizona
College of the Mainland	Texas
Community College of Beaver County	Pennsylvania
Community College of the Finger Lakes	New York
Craven Community College	North Carolina
Danville Community College	Virginia
Davenport College of Business	Michigan
Dean Junior College	Massachusetts
Eastern Oklahoma State College	Oklahoma
Edgecombe Technical Institute	North Carolina
Elizabeth Seton College	New York
Fashion Institute of Design/Merchandising	California
Flathead Valley Community College	Montana
Florida Keys Community College	Florida
Frank Phillips College	Texas
Fulton-Montgomery Community College	New York

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT BETWEEN 1001 - 5000

NAME	STATE
Gadsden State Junior College	Alabama
Gainesville Junior College	Georgia
Galveston College	Texas
Garden City Community Junior College	Kansas
Gavilan College	California
George Corley Wallace State Community College	Alabama
Grays Harbor College	Washington
Gulf Coast Community College	Florida
Hagerstown Junior College	Maryland
Henderson County Junior College	Texas
Highland Community College	Illinois
Howard Community College	Maryland
Howard College at Big Spring	Texas
Imperial Valley College	California
Iowa Western Community College	Iowa
Itawamba Junior College	Mississippi
Jackson State Community College	Tennessee
James H. Faulkner State Junior College	Alabama
Jefferson College	Missouri
John Wood Community College	Illinois
John A. Logan College	Illinois
Jones County Junior College	Mississippi
Kansas City Kansas Community College	Kansas
Kaskaskia College	Illinois
Kirtland Community College	Michigan
Kishwaukee College	Illinois
Lackawanna Junior College	Pennsylvania
Lake Michigan College	Michigan
Laramie County Community College	Wyoming
Laredo Junior College	Texas
Louisiana State University - Eunice Campus	Louisiana
Lower Columbia College	Washington
Massachusetts Bay Community College	Massachusetts
Meridian Junior College	Mississippi
Mid-State Technical Institute	Wisconsin
Minnesota Community College System	Minnesota
Monroe County Community College	Michigan
Muskingum Area Technical College	Ohio
Nashville State Technical Institute	Tennessee
Nebraska Western College	Nebraska
Northeastern Oklahoma A & M College	Oklahoma
North Central Technical Institute	Wisonsin
Northwest Community College	Wyoming
North Central Technical College	Ohio
North Dakota State School of Science	North Dakota
Northeastern Christian Junior College	Pennsylvania

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT BETWEEN 1001 - 5000

NAME	STATE
Northeastern Junior College	Colorado
Northern Wyoming Community College	Wyoming
Northland Pioneer College	Arizona
North County Community College	New York
Odessa College	Texas
Panola Junior College	Texas
Passaic County Community College	New Jersey
Piedmont Virginia Community College	Virginia
Rend Lake College	Illinois
Richland Community College	Illinois
Roane State Community College	Tennessee
Rochester Community College	Minnesota
Rockingham Community College	North Carolina
Rogue Community College	Oregon
Salem Community College	New Jersey
Schenectady County Community College	New York
Seminole Community College	Florida
Shawnee State Community College	Ohio
Snow College	Utah
South Central Community College	Connecticut
Southeastern Community College - North Campus	Iowa
Southeastern Illinois College	Illinois
Southwest Texas Junior College	Texas
Southside Virginia Community College	Virginia
Southeastern Community College	North Carolina
Southern Union State Junior College	Alabama
Southwestern Michigan College	Michigan
Southwest Wisconsin Technical Institute	Wisconsin
Southwest Virginia Community College	Virginia
Spoon River College	Illinois
Springfield Technical Community College	Massachusetts
State Fair Community College	Missouri
State University of New York - Agricultural and Technical Colleges	New York
Sullivan County Community College	New York
Sumter Area Technical College	South Carolina
Technical College of Alamance	North Carolina
Texarkana Community College	Texas
Trinidad State Junior College	Colorado
Ulster County Community College	New York
Vincennes University	Indiana
Vocational Technical and Adult Education System	Wisonsin
Wake Technical Institute	North Carolina
Walters State Community College	Tennessee
Wentworth Institute	Massachusetts
Western Oklahoma State College	Oklahoma
Western Piedmont Community College	North Carolina

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT BETWEEN 1001 - 5000

NAME	STATE
West Virginia Northern Community College	West Virginia
Western Wyoming Community College	Wyoming
Westmoreland County Community College	Pennsylvania
Western Wisconsin Technical Institute	Wisconsin
Westark Community College	Arkansas
Wharton County Junior College	Texas
Whatcom Community College	Washington
Yavapai College	Arizona

Total in this Category = 146

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT BETWEEN 5001 - 15000

NAME	STATE
Allan Hancock College	California
Amarillo College	Texas
Anne Arundel Community College	Maryland
Antelope Valley College	California
Arapahoe Community College	Colorado
Borough of Manhattan Community College	New York
Bucks County Community College	Pennsylvania
Catonsville Community College	Maryland
Central Arizona College District	Arizona
Chabot College	California
Citrus College	California
College of the Desert	California
College of Lake County	Illinois
College of the Redwoods	California
Columbus Technical Institute	Ohio
Community College of Philadelphia	Pennsylvania
County College of Morris	New Jersey
Cuesta College	California
Del Mar College	Texas
Delaware County Community College	Pennsylvania
Des Moines Area Community College	Iowa
Dundalk Community College	Maryland
Eastfield College	Texas
El Centro College	Texas
El Paso County Community College	Texas
Elgin Community College	Illinois
Erie Community College	New York
Fort Steilacoom Community College	Washington
Greenville Technical College	South Carolina
Green River Community College	Washington
Harrisburg Area Community College	Pennsylvania
Hillsborough Community College	Florida
Hinds Junior College	Mississippi
Illinois Central College	Illinois
J. Sargeant Reynolds Community College	Virginia
Jefferson State Junior College	Alabama
Joliet Junior College	Illinois
Kingsborough Community College	New York
Lakeland Community College	Ohio
Laney College	California
Lewis & Clark Community College	Illinois
Linn-Benton Community College	Oregon
Lorain County Community College	Ohio
Los Angeles Harbor College	California
Los Angeles Southwest College	California
Metropolitan Technical Community College	Nebraska

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT BETWEEN 5001 - 15000

NAME	STATE
Monterey Peninsula College	California
Mountain View College	Texas
Mt Hood Community College	Oregon
Northern Essex Community College	Massachusetts
Ocean County College	New Jersey
Olympic College	Washington
Onondaga Community College	New York
Orange County Community College	New York
Oscar Rose Junior College	Oklahoma
Palm Beach Junior College	Florida
Parkland College	Illinois
Polk Community College	Florida
Prince George's Community College	Maryland
Rhode Island Junior College	Rhode Island
Richland College	Texas
Ricks College	Idaho
Rio Hondo College	California
Rockland Community College	New York
Rock Valley College	Illinois
Santa Barbara City College	California
Schoolcraft College	Michigan
Skagit Valley College	Washington
Sierra College	California
South Oklahoma City Junior College	Oklahoma
St. Petersburg Junior College	Florida
State University of New York at Farmingdale	New York
Thornton Community College	Illinois
Tidewater Community College	Virginia
Union College	New Jersey
Valencia Community College	Florida
Walla Walla Community College	Washington
Washtenaw Community College	Michigan
Waubonsee Community College	Illinois

Total in this Category = 79

NACUBO SURVEY

COLLEGES WITH A HEAD COUNT OVER 15000

NAME	STATE
Broward Community College	Florida
Chemeketa Community College	Oregon
City College of Chicago	Illinois
City College of San Francisco	California
Coast Community College District	California
College of Dupage	Illinois
Cuyahoga Community College	Ohio
Dallas County Community College District	Texas
Daytona Beach Community College	Florida
Dekalb Community College	Georgia
El Camino College	California
Houston Community College	Texas
Lansing Community College	Michigan
Long Beach City College	California
Los Angeles Community Colleges	California
Macomb County Community College	Michigan
Miami-Dade Community College	Florida
Milwaukee Area Technical College	Wisconsin
Mt San Antonio College	California
Nassau Community College	New York
North Orange County Community College District	California
Oakland Community College	Michigan
Pensacola Junior College	Florida
Peralta Community College District	California
Pima Community College	Arizona
San Francisco Community College District	California
San Diego Community College District	California
San Jose Community College District	California
San Antonio Community College District	Texas
Santa Monica College	California
Santa Rosa Junior College	California
Seattle Central Community College	Washington
Sinclair Community College	Ohio
St. Louis Community College	Missouri
Suffolk County Community College	New York
Triton College	Illinois
Wayne County Community College	Michigan
William Rainey Harper College	Illinois

Total in this Category = 38

APPENDIX E

DRAFT QUESTIONNAIRE FOR NEXT YEAR'S STUDY

Following is the proposed questionnaire, definition of terms, and computations to be performed for the 1980-1981 survey presently planned to be conducted between January and April 1981. Suggestions as to improvements will be welcomed and should be sent to the author.

NACUBO COMPUTER COSTS QUESTIONNAIRE

Institution: Name of College: _____

City: _____ State: _____ Zip: _____

2. Person Completing Questionnaire (who could be contacted if necessary):

_____ (Name) _____ (Title) _____ (Phone No.)

3. Is your institution: Public? _____ Private? _____

IN ORDER TO COMPLETE REST OF QUESTIONNAIRE, PLEASE REFER TO DEFINITIONS ON NEXT PAGE.

4. What is the total of your college's operating costs? TOC $_____

5. What is your Fall 1980 total credit student headcount? SHC _____

6. Do you spend any monies for computer support (internally provided or externally purchased services)? Yes ____ No ____

7. Is a material part or all of your computer expenditures provided by an "umbrella" consortium of some type? Yes ____ No ____

IF NO, PLEASE PROCEED WITH THE REST OF THE QUESTIONNAIRE.

IF YES, CAN YOU APPROXIMATE THE SHARE OF THE CONSORTIUM COSTS THAT BENEFIT YOUR INSTITUTION? Yes ____ No ____

IF NO, DO NOT PROCEED FURTHER BUT PLEASE DO RETURN THE QUESTIONNAIRE.

IF YES, PLEASE PROCEED WITH REST OF THE QUESTIONNAIRE AND INCLUDE IN ITEM 8 BELOW YOUR SHARE OF THE CONSORTIUM COSTS ALONG WITH ANY OTHER COMPUTER-RELATED COSTS INCURRED BY YOUR INSTITUTION.

8. What are your total computer expenditures for the year reported on, broken down as follows:

For Latest 12-Month Period

_____ 19__ _____ 19__

a. Computer-Related Operating Costs COC $_____

b. Computer-Related Development Costs CDC $_____

c. Computer-Related Capital Costs Broken Down Between:

(1) Computer-Related Capital Equipment Purchase Costs CCC $_____

(2) Computer-Related Capital Equipment Lease Costs CLC $_____

d. Total Computer-Related Costs (total of four above items) TCC $_____

9. Please provide your best estimate of the breakdown of your total computer-related expenditures as between administrative support and academic/instructional support. (Suggested basis for breakdown is costs that can be directly identified with each of the two functions plus an allocation of other operating, overhead and capital costs on the basis of the value of benefits provided to that function.)

a. Administrative Support CAdC $_____

b. Academic/Instructional Support CAcC $_____

c. Total Computer-Related Costs (same figure as 8-d above) TCC $_____

COMPUTATIONS TO BE PERFORMED

Following are the calculations that are proposed to be performed in the 1980-1981 survey. These computations are to be calculated for all institutions and within size-of-institution categories and presented by 12.5th, 37.5th, 50th, 62.5th and 87.5th percentiles.

1. Computer-Related Costs in Relation to College Total Operating Expenditures

$\frac{COC}{TOC}$	=	Percent of college total operating costs allocated to "normal" computer operating services.
$\frac{COC + CLC}{TOC}$	=	Percent of college total operating costs allocated to the sum of "normal" computer operating services and computer capital equipment lease costs--i.e., all annual "ongoing" computer-related costs, operating and lease, thus excluding "one-shot" development and capital equipment purchase costs.
$\frac{COC + CDC}{TOC}$	=	Percent of college total operating costs allocated to the sum of "normal" computer operating services and major 'one-shot" development costs--i.e., all computer-related costs except capital equipment (purchase and lease) costs.
$\frac{COC + CDC + CCC + CLC}{TOC}$	=	Percent of college total operating costs allocated to all computer-related services: i.e., the sum of "normal" computer services, development costs, and capital equipment (purchase and lease) costs.

2. Computer-Related Costs in Relation to Credit Student Headcount

$\frac{COC}{TOC}$	=	"Normal" computer operating costs per credit headcount student.
$\frac{COC + CLC}{SHC}$	=	"Normal" computer operating costs plus computer equipment lease costs per credit headcount student.
$\frac{COC + CDC}{SHC}$	=	"Normal" computer operating costs plus major "one-shot" development costs per credit headcount student.
$\frac{COC + CDC + CCC + CLC}{SHC}$	=	All computer-related costs: "normal" computer services, development costs, and capital equipment (purchase and lease) costs per credit headcount student.

3. Computer-Related Costs Allocated Between Support to Administrative and to Academic/Instructional Programs

$\frac{CAdC}{TCC}$	=	Percent of total computer-related costs allocated to administrative support.
$\frac{CAcC}{TCC}$	=	Percent of total computer-related costs allocated to academic support.
$\frac{CAdC}{SHC}$	=	Total computer costs allocated to administrative support per credit headcount student.
$\frac{CAcC}{SHC}$	=	Total computer costs allocated to academic support per credit headcount student.

4. College Total Operating Expenditures per Credit Headcount Student

$\frac{TOC}{SHC}$	=	College total operating costs per credit headcount student.

DEFINITIONS

1. TOC = College Total Operating Expenditures = Current General Fund including both unrestricted and restricted funds (includes Auxiliary Fund); excludes (major) Capital Expenditures. This figure solicits College Total Operating Expenditures, not just expenditures relating to computer activities.

2. SHC = Credit Student Headcount = The unduplicated total of full-time and part-time credit student headcount for fall 1980. This should be the same figure as is published by the AACJC in its Community, Junior, and Technical College Directory.

3. COC = Total Computer-Related Operating Expenditures = Operating costs for computer center, computer service personnel, remote terminals, leased lines, computer maintenance costs, steady state and routine programming, computer-related supplies whether in the computer center's or users' budgets, and the like. *

4. CDC = Total Computer-Related Development Expenditures = Costs incurred for special one-shot, significant software development activities, e.g., costs of procurement of software packages, employment of outside technical consultants, and the like. This figure, and other figures below, solicit all of the college's computer-related costs, including those decentralized to administrative offices and academic units and whether (1) directly provided, (2) purchased from vendors, or (3) provided by a consortium.

5. CCC = Total Computer-Related Capital Expenditures = Costs for purchase of computer hardware.

6. CLC = Total Computer-Related Lease Expenditures = Costs for lease of computer hardware.

7. TCC = Total Computer-Related Expenditures = The College's total computer-related costs for the year of all types and whether centrally administered or decentralized to administrative offices and academic units. This should be the sum of COC, CDC, CCC, and CLC, i.e., of 3, 4, 5 and 6 above. * Also some of 8 and 9 below.

8. CAdC = Total Computer-Related Operating Expenditures-Administrative = The administrative cost portion of Total Computer-Related Operating Expenditures (broken down as arbitrarily as necessary). Includes financial management, payroll/personnel, student registration and information, academic effort accounting, and other uses not directly supporting the pedagogical process.

9. CAcC = Total Computer-Related Operating Expenditures-Academic/Instructional = The academic/instructional cost portion of Total Computer-Related Operating Expenditures (broken down as arbitrarily as necessary). Includes computer-assisted instruction, computer-managed instruction, simulation, gaming, problem solving and other support to students and faculty in the academic/instructional process. *

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* All figures exclude data processing curricular costs except for hardware and software and directly related supplies and other costs required for equipment operation; thus, excludes data processing faculty compensation and general instructional support.

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